

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: DONG HEE LEE

FOR: BATTERY CONNECTOR FOR A MOBILE PHONE

**PRELIMINARY AMENDMENT**

The Assistant Commissioner of  
Patents and Trademarks  
Washington, DC 20231

Dear Sir:

Prior to the Examiner acting in the above-referenced application, please amend the application as follows:

**IN THE SPECIFICATION:**

Please replace the title on page 1 with the following rewritten title:

--BATTERY CONNECTOR FOR MOBILE PHONE--.

Please replace the paragraph on page 1, lines 9-14, with the following rewritten clean version:

--Referring to FIG. 4, a conventional battery connector 40 for a mobile phone is assembled such that a fixing part 42 is inserted into an interface connector body 41 installed inside a main body of a mobile phone. An elastic contact part 43 integrally extending from one end of the fixing part 42 is bent at an acute angle with respect to the fixing part 42. The center of the elastic contact part 43 is convexly bent upward, and passes through the interface connector body 41 to project outside the main body of a mobile phone, as shown in FIG. 4.--

Please replace the paragraph on page 3, line 8, with the following rewritten clean version:

--FIG. 3 is a cross-sectional view taken along the line A-A shown in FIG. 2; and--

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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Jennifer Matson  
(Typed or printed name of person mailing paper or fee)

[Signature]  
(Signature of person mailing paper or fee)

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Please replace the paragraph on page 3, lines 19-22, with the following rewritten clean version:

--As shown in FIG. 2, the battery connector **30** according to the present invention includes a body **31** having a plurality of plunger housings **32**. The housings **32** and the body **31** are integrally formed preferably using plastic material so that the upper portions of the plunger housings **32** project upward from the top plane of the body **31**.--

Please replace the paragraph on page 4, lines 5-14, with the following rewritten clean version:

--The plunger **34** includes a guide portion **34a** in slidably contact with the inner side wall of the bore **32a** of each of the plunger housing **32**, a contact portion **34b** coaxially extending upward from the guide portion **34a** and penetrating through the opening **32b** of the plunger housing **32** to project to the plunger housing **32**, and a spring fixing portion **34d** coaxially extending downward from the lower end of the guide portion **34a**, and into which a spring **37** is fitting inserted. The contact portion **34b** has a hemispherical upper end in order to maintain a point contact with the battery terminal. A spring sheet surface **34c** with which one end of the spring **37** is in contact at a boundary between the guide portion **34a** and the spring fixing portion **34d**, is inclined so that the force of the spring **37** acts on the plunger **34** bias.--

Please replace the paragraph on page 4, lines 15-22, with the following rewritten clean version:

--A base cover member **35** is fitted in the lower end of the bore **32a** of each of a plurality of the plunger housings **32** so that the plunger **34** is supported by the spring **37**. The base cover member **35** has a cylindrical connection part **35b** extended upwardly on the top surface of a base plate **35a** to be fitted in the lower end of the bore **32a**. On the outer surface of the cylindrical connection part **35b** is formed an annular hook **35c** engaged with a coupling groove **32c** formed on the side wall of the plunger housing **32**. The base cover member **35** and the spring **37** are made of conductive material such as a copper alloy.--

Please replace the paragraph on page 5, lines 1-6, with the following rewritten clean version:

--The battery connector **30** according to the present invention is assembled such that the plunger **34** is inserted into the bore **32a** of the plunger housing **32** in which one end of the spring **37** is fitted on the lower spring fixing portion **34d**, and the lower end of the bore **32a** is covered by the base cover member **35**. The plunger **34** is pushed by the spring **37** so that the top surface of the guide portion **34a** is in contact with the shoulder **32d** of the plunger housing **32**, that is, the contact portion **34b** of the plunger **34** protrudes from the plunger housing **32**.--

IN THE CLAIMS:

Please replace claim 1 with the following rewritten clean version:

1. (Amended) A battery connector for a mobile phone, installed in a main body of the mobile phone and contacting a battery terminal to supply power to a printed circuit board (PCB) of the mobile phone, the battery connector comprising:

- a body having a plurality of plunger housings;
- a plunger slidably installed in each of the plurality of plunger housings of the body;
- a base cover member having a cylindrical connection part fitted in a lower end of each of the plurality of plunger housings, a bottom surface of the base cover member adhered to the PCB by soldering and made of conductive material; and
- a spring biasing the plunger in the plunger housing against the bottom of the base cover member.

Please add the following new claims 2-10:

2. (New) An electric connector for providing electric connection between an electric power source and an operating member, comprising:

- a contact plunger for making contact with the electric power source, the contact plunger being made of conductive material;
- a housing for slidably receiving the contact plunger;

a spring disposed under the contact plunger inside the housing, for providing the contact plunger with elasticity and being made of conductive material; and

a base member disposed between the housing and the operating member, for fixing the housing at a selected region on the operating member, the base member being made of conductive material.

3. (New) The electric connector of claim 2, wherein the contact plunger comprises:

a contact portion for making direct contact with the electric power source, the contact portion protruding from an upper opening of the housing;

a guide portion slidably disposed inside the housing, the guide portion having contact with inner surface of the housing; and

a spring fixing portion extending downward from a lower end of the guide portion, the spring fixing portion being disposed to be engaged with the spring.

4. (New) The electric connector of claim 3, wherein the housing comprises:  
a shoulder formed at the upper opening of the housing, the shoulder extending inward from edge of the upper opening of the housing; and

a coupling groove formed on an outer surface at a lower end of the housing, the coupling groove being disposed to be engaged with the base member.

5. (New) The electric connector of claim 4, wherein the shoulder makes direct contact with an upper edge of the guide portion of the contact plunger in response to elastic movement of the spring.

6. (New) The electric connector of claim 4, wherein the base member comprises a connection part formed at an upper end of the base member, the connection part having a cylindrical shape to be fitted with the coupling groove of the housing.

7. (New) The electric connector of claim 6, wherein the base member is soldered at the selected region on the operating member.

8. (New)      The electric connector of claim 2, wherein the electric power source is a battery having a terminal to be in contact with the contact plunger.

9. (New)      The electric connector of claim 8, wherein the operating member is a circuit board for receiving electric power from the battery.

10. (New)     The electric connector of claim 8, wherein the electric connector, the circuit board, and the battery are included in a mobile phone.

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**REMARKS**

Entry of the Preliminary Amendment prior to the examination of the above-identified application on the merits is respectfully requested.

Claim 1 has been amended, and new claims 2-10 have been added. No new matter has been added by the Preliminary Amendment as antecedent support is set forth in the specification and the original claims.

If there are any charges with respect to this Amendment, please charge them to Deposit Account No. 06-1130 maintained by Applicant's attorneys.

Respectfully submitted,  
Dong Hee Lee

CANTOR COLBURN LLP  
Applicant's Attorney

By: 

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

SPECIFICAION AMENDMENTS

Please amend the title on page 1, as follows:

BATTERY CONNECTOR FOR [A] MOBILE PHONE

Please amend the paragraph on page 1, lines 9-14 as follows:

[A] Referring to FIG. 4, a conventional battery connector **40** for a mobile phone is assembled such that a fixing part **42** is inserted into an interface connector body **41** installed inside a main body of a mobile phone. [, and an] An elastic contact part **43** integrally extending from one end of the fixing part **42** [to be] is bent at an acute angle with respect to the fixing part **42**. [, the] The center of the elastic contact part **43** [being] is convexly bent upward, and passes through the interface connector body **41** to project outside the main body of a mobile phone, as shown in FIG. 4.

Please amend the paragraph on page 3, line 8 as follows:

FIG.3 is a cross-sectional view taken along the line A-A shown in FIG.[1] 2; and

Please amend the paragraph on page 3, lines 19-22 as follows:

As shown in FIG. 2, the battery connector **30** according to the present invention includes a body **31** having a plurality of plunger housings **32**. The housings **32** and the body **31** are integrally formed preferably using [a] plastic material so that the upper portions of the plunger housings **32** project upward from the top plane of the body **31**.

Please amend the paragraph on page 4, lines 5-14 as follows:

The plunger **34** includes a guide portion **34a** in slidably contact with the inner side wall of the bore **32a** of each of the plunger housing **32**, a contact portion **34b** coaxially extending upward from the guide portion **34a** and penetrating through the opening **32b** of the plunger housing **32** to project to the plunger housing **32**, and a spring fixing portion **34d** coaxially extending downward from the lower end of the guide portion **34a**, and into which a spring **37** is fitting inserted. The contact portion [34d] 34b has a hemispherical

upper end in order to maintain a point contact with the battery terminal. A spring sheet surface **34c** with which one end of the spring **37** is in contact at a boundary between the guide portion **34a** and the spring fixing portion **34d**, is inclined so that the force of the spring **37** acts on the plunger **34** bias.

Please amend the paragraph on page 4, lines 15-22 as follows:

A base cover member **35** is fitted in the lower end of the bore **32a** of each of [the] a plurality of the plunger housings **32** so that the plunger **34** is supported by the spring **37**. The base cover member **35** has a cylindrical connection part **35b** extended upwardly on the top surface of a base plate **35a** to be fitted in the lower end of the bore **32a**. On the outer surface of the cylindrical connection part **35b** is formed an annular hook **35c** engaged with a coupling groove **32c** formed on the side wall of the plunger housing **32**. The base cover member **35** and the spring **37** are [necessarily] made of [a] conductive material such as a copper alloy.

Please amend the paragraph on page 5, lines 1-6 as follows:

The battery connector [31] 30 according to the present invention is assembled such that the plunger **34** is inserted into the bore **32a** of the plunger housing **32** [with] in which one end of the spring **37** is fitted on the lower spring fixing portion **34d**, and the lower end of the bore **32a** is covered by the base cover member **35**. The plunger **34** is pushed by the spring **37** so that the top surface of the guide portion **34a** is in contact with the shoulder **32d** of the plunger housing **32**, that is, the contact portion **34b** of the plunger **34** protrudes from the plunger housing **32**.

#### CLAIM AMENDMENTS

Please amend claim 1 as follows:

1. (Amended) A battery connector for a mobile phone, installed in a main body of the mobile phone and contacting a battery terminal to supply power to a printed circuit board (PCB) of the mobile phone, the battery connector comprising:
  - a body having a plurality of plunger housings;

a plunger slidably installed in each of the plurality of plunger housings of the body;

a base cover member having a cylindrical connection part fitted in [the] a lower end of each of the plurality of plunger housings [to close each of the plurality of the plunger housings], [the] a bottom surface of the base cover member adhered to the PCB by soldering and made of [a] conductive material; and

a spring biasing the plunger in the plunger housing against the bottom of the base cover member.

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